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10/771,669	02/04/2004	Yoo-shin Lee	P2072US	3595

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EXAMINER	
WANG, KENT F	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
10/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,669	LEE ET AL.	
	Examiner	Art Unit	
	KENT WANG	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 08/28/2008, have been entered and made of record. Claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments filed on 08/28/2008 with respect to the claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.
3. Applicant's arguments with respect to claims 12-20 rejected under 35 U.S.C. § 103(a) have been considered but are not persuasive.
4. The applicant argues that the combination of Fischer, Hsin, and Jeansonne does not teach or suggest a USB cable comprising a second connector containing a charging portion that communicates with a device controller, as claimed in claim 12. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is noted that it's not Fischer, but it was Hsin reference discloses a USB cable for transferring power from a USB receptacle to a portable device such as a cell phone, the USB cable comprising a USB battery charger enclosed within a multipurpose USB connector. Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the multipurpose USB connector as taught

by Hsin as modified by Fischer so that the cable provides more flexible charging options. Therefore, Applicant's arguments are not persuasive.

5. With respect to the claims 13-20, the examiner believes his office action of 05/29/2008 is proper and accurate. Applicant's arguments are not persuasive.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-3 and 5-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Freeman (US 6,650,089).

Regarding claim 1, Kerai discloses an apparatus for charging a battery of a portable electronic device (a portable radio telephone 14) that includes a main controller controlling overall operation of the portable electronic device (a microprocessor 17 is employed to control all the basic functions of the telephone 14 and to control the keypad and display functions, Fig 2), the portable electronic device being connected to a computer USB port (a USB interface or port shown generally as P, Fig 2), the apparatus transferring power from the computer through the USB port (the handset USB connector 22 must be connected via a USB cable 2 to a USB hub such as a laptop computer 29, Fig 6), the apparatus comprising:

- a charger control portion (charger control circuit 19, Fig 2) electrically connected with the main controller (microprocessor 17, Fig 2), the charger control portion generating charge control signals (power signals, Vbus) ([0024]);

- a charging portion (charger circuit 19, Fig 2) electrically connected with the charger control portion (charger control circuit 19, Fig 2) and receiving charge control signals (Vbus) from the one or more outputs of the charger control portion (provides a signal indicative of the level of charge to the charger control circuit 19) ([0034]); and
- a transistor (switch 28, Fig 2) externally connected to the charging portion (charger circuit 19, Fig 2), the transistor and the charging portion cooperating to charge the battery according to the charge control signals generated by the charger control portion (the charger control circuit 19 will cause the switch 28 to open preventing further depletion of the laptop computer battery and equally preventing overcharging of the handset battery) ([0034]).

Kerai does not disclose the charger control portion generating charge control signals at one or more outputs according to a battery selection signal that is output from the main controller and received at an input of the charger control portion, the battery selection signal distinguishing the battery from a plurality of batteries installable in the portable electronic device. However, Freeman discloses the charger control portion (control system 82, Fig 3) generating charge control signals (the voltage signals provided by the control system that disables and enables the charger) at one or more outputs according to a battery selection signal (switch control signals) and received at an input of the charger control portion, the battery selection signal (switch control signals) distinguishing the battery from a plurality of batteries (the DC supply, a first battery supply, a second battery supply, and a third battery supply)

installable in the portable electronic device (the control system 82 employs switch control signals to select a battery for charging as the control system controls the selection of which battery pack of the plurality of battery packs will be coupled to the battery bus and the control system can decide on pack switching based on pack voltage, capacity and/or battery priority, the control system measures the selected battery voltage from the battery bus and informs the power sequencer when a valid selected battery voltage is available, the power sequencer 24 then provides voltage to the control system and the capacity gauge from the selected battery) (3:37-4:19, 4:49-63, and 6:53-7:22, Freeman).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Freeman into Kerai's device, so as the system is capable in constant communication with the capacity gauge to ensure that the appropriate battery is selected and that its capacity is updated and parameters are monitored (3:37-61, Freeman).

Regarding claim 2, Kerai discloses the charge control signals of the control portion comprise a charge start signal (a power signals, Vbus) to enable output of the charging portion (a Vbus power signals from the power pin 24 of the connector 22 is connected via a switch 28 in series with a diode 100 to a conductor 101 connecting the charger jack 20 to the charger control circuit 19) ([0026], Kerai).

Regarding claim 3, the limitations of claim 1 are taught above, Freeman discloses the charge control signals of the control portion comprise a battery type signal (the sampled digital signal information) to control an output voltage level according to the battery selection signal (switch control signals) (the control system 82 employs the

sampled digital signal information in making decisions for charging of the batteries and the control system 82 also employs switch control signals to select a battery for charging or discharging) (6:66-7:22, Freeman).

Regarding claim 5, Kerai discloses a USB controller for controlling bidirectional data transmission (received and transmitted data) between the computer and the portable electronic device (a parallel connector 22 on the handset 14 provides connections to an external parallel cable 61 of which two lines carry received and transmitted data 62, 63 respectively to the parallel port 60 of the laptop 29, Fig 6) ([0040], Kerai).

Regarding claim 6, Kerai discloses the battery selection signal is input by a user (a user is able to select, via a menu provided on an otherwise conventional user interface display 30 of the handset 14, one of a number of modes of operation of the power and data transfer connections, Fig 7a) ([0027], Kerai).

Regarding claim 7, the limitations of claim 1 are taught above, Freeman discloses the battery selection signal (switch control signal) is input by a battery recognition apparatus (the control system 82) (7:10-22, Freeman).

8. Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Freeman (US 6,650,089), and further in view of Fischer (US 6,946,817).

Regarding claim 4, the limitations of claim 1 are taught above, Kerai and Freeman do not disclose the charge control signals of the control portion comprise a charge voltage control signal and a charge current control signal. However, Fischer discloses

the charge control signals of the control portion (the control signal from charge current controller 408) comprise a charge voltage control signal (monitor the voltage level) and a charge current control signal (control the amount of current), which are generated based on the detection of a charge current and a charge voltage from the charging portion (charge current controller 408, Fig 5), to control the charge current and the charge voltage (battery voltage curve 610 and battery current curve 620, Fig 7) (7:55-67, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Fischer into Kerai and Freeman's device, so as the system can be contemplated to ensure constant current, constant voltage, constant power, programmable constant current, and pulse current can be used independently or in combination to provide a multiple mode charging operation (8:62-9:27, Fischer).

9. Claims 8-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo (US 6,151,652) in view of Freeman (US 6,650,089), and further in view of Fischer (US 6,946,817).

Regarding claim 8, Kondo discloses a digital camera (digital camera 1, Fig 1) connected to a computer (a computer 3, Fig 1) by USB to charge a battery by receiving power from the computer through USB (USB interface cable 4, Fig 1), the digital camera comprising:

- a digital camera controller (CPU 12, Fig 1); and

- a USB charger including a USB controller (power supply control circuit 14, Fig 1) to transmit and receive data through a USB port of the computer (3), a control portion (CPU 12, Fig 1) to generate charge control signals corresponding to battery selection signal, a charging portion (charging circuit 143, Fig 8) electrically connected with the control portion (12) (4:1-18 and 6:21-28).

Kondo does not explicitly disclose a battery recognition apparatus and a power converting portion to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels. However, Freeman discloses a battery recognition apparatus (control system 12/82, Fig 3) that distinguishes the battery from a plurality of batteries (a control system 12/82 controls the selection of which battery pack of the plurality of battery packs 18) (3:37-61, Freeman), and a power converting portion (the control system 12/82) to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels (the control system 12/82 employs switch control signals to select a battery for charging as the control system controls the selection of which battery pack of the plurality of battery packs will be coupled to the battery bus and the control system can decide on pack switching based on pack voltage, capacity and/or battery priority, the control system measures the selected battery voltage from the battery bus and informs the power sequencer when a valid selected battery voltage is available, the power sequencer 24 then provides voltage to the control system and the capacity gauge from the selected battery) (3:37-4:19, 4:49-63, and 6:53-7:22, Freeman).

Kondo and Freeman do not disclose a transistor externally connected to the charging portion. However, Fischer discloses a transistor (transistor 404, Fig 5) externally connected to the charging portion (charge controller 402, Fig 5), the transistor (404) and the charging portion (402) cooperating to charge the battery according to the charge control signals from the control portion (the charge controller 402 regulates the amount of current passing through the current-carrying terminals of the transistor 404 in order to supply a constant charge current to the rechargeable battery) (9:28-39, Fischer).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Freeman into Kondo's device, so as the system is capable in constant communication with the capacity gauge to ensure that the appropriate battery is selected and that its capacity is updated and parameters are monitored (3:37-61, Freeman).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the transistor as taught by Fischer as modified by Kondo and Freeman so that the charge controller maintains a substantially constant voltage level by controlling the current passing through the transistor (10:1-17, Fischer).

Regarding claim 9, the limitations of claim 8 are taught above, Fischer discloses the charge control signals of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3, Fischer) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (6:21-34 and Fig 3, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a controller as taught by Fischer as modified by Kondo so that it can reset the connection between the processing device and the data lines, which results in the USB controller detecting a new connection to the USB interface (6:21-35, Fischer).

Regarding claim 10, the limitations of claim 8 are taught above, Fischer discloses the charge control signals of the control portion comprise a battery type signal (charge configuration signals 214, Fischer) to control an output voltage level according to the battery selection signal (controls the power supplied by the charging subsystem 16 to the rechargeable battery 18, Fischer) (6:21-34 and Fig 3, Fischer).

Regarding claim 11, the limitations of claim 8 are taught above, Fischer discloses the charge control signals of the control portion (the control signal from charge current controller 408, Fig 5, Fischer) comprise a charge voltage control signal (monitor the voltage level) and a charge current control signal (control the amount of current), which are generated based on the detection of a charge current and a charge voltage from the charging portion (charge current controller 408, Fig 5, Fischer), to control the charge current and the charge voltage (battery voltage curve 610 and battery current curve 620, Fig 7, Fischer) (7:55-67, Fischer).

10. Claims 12-13, 15-18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatented by Fischer in view of Hsin (US 2003/0148663), and further in view of Jeansonne (US 2004/0203275).

Regarding claim 12, Fischer discloses a USB cable for transferring power from a USB receptacle to a portable electronic device (mobile communication device) with a power and data port, a battery and a device controller, the USB cable comprising:

- a first connector (a port at USB interface 12, Fig 1) configured to mate with the USB port (2:30-38);
- a second connector (a port at charging subsystem 16, Fig 1) configured to mate with the power and data port (2:39-47);
- a USB battery charger (a charging subsystem 16, Fig 1) including a charging portion (charging current control 408) that communicates with the device controller (charging controller 402) for receiving at least one signal relative to the battery, the charging portion (charging current control 408) adjusting power received from the USB receptacle relative to the at least one signal (charge configuration signal 214) for charging the battery (2:39-3:4).

Fischer does not explicitly disclose a USB battery charger enclosed within the first connector neither does Fischer disclosed at least two wires electrically connecting the first and second connectors.

Hsin discloses a USB cable for transferring power from a USB receptacle to a portable electronic device (portable device such as a cell phone), the USB cable comprising a USB battery charger enclosed within the connector (a multipurpose USB connector 10, Fig 2) ([0015], Hsin).

Jeansonne discloses a USB cable (16, Fig 1) at least two wires (a +5 volt wire 30 and a ground wire 32, Fig 2) electrically connecting the first (a first connector end 24, Fig 1) and second connectors (a second connector end 26, Fig 1) ([0016], Jeansonne).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the multipurpose USB connector as taught by Hsin and the cable as taught by Jeansonne as modified by Fischer so that the cable may comprise a shielding layer and an outer protective layer ([0016], Jeansonne) and provide more flexible charging options ([0006], Hsin).

Regarding claim 13, Fischer discloses the charge control signals of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (6:21-34 and Fig 3).

Regarding claim 15, Fischer discloses the control portion (charging current control 408, Fig 5) comprises the device controller (charging controller 402, Fig 5) (7:41-67).

Regarding claim 16, Fischer discloses a USB controller for controlling bidirectional data transmission (request capability 1320 and report capability 1340, Fig 12B) between the computer and the portable electronic device (the transmission of request and report data between the mobile device and the USB host) (14:26-39 and Figs 12A and 12B).

Regarding claim 17, this claim recites same limitations as claim 16. Thus it is analyzed and rejected as previously discussed with respect to claim 16 above.

Regarding claim 18, Fischer discloses the at least two wires (a Vbus power line 24 and a data line 26, Fig 1) comprises:

- a first portion (first end of a Vbus power line 24) that interconnects a data interface of the first connector (a port at USB interface 12, Fig 1) with the USB controller (USB controller 14, Fig 1); and
- a second portion (second end of a Vbus power line 24) that interconnects a power interface of the first connector (a port at USB interface 12, Fig 1) with the charging portion (charging subsystem 16, Fig 1) (2:40-57).

Regarding claim 20, Fischer discloses the charging portion (charging subsystem 16) comprises:

- a linear regulator (power supplies switch 414, Fig 5) for outputting power to the control portion (7:24-40 and 8:10-51);
- a reference voltage generating portion (charge current control 408, Fig 5) for adjusting a voltage charging the battery (7:41-67); and
- a voltage/current regulator (a voltage regulator 412, Fig 5) including an attenuator, a current sense amplifier, a voltage regulation loop compensator and a current regulation loop compensator (7:24-40 and 8:38-61).
-

11. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer in view of Hsin and Jeansonne, and further in view of Odaohhara (US 6,424,123).

Regarding claim 14, note the discussion of claim 12 above. Fischer does not teach the control portion comprises a PWM module. However, Odaohhara teaches the

control portion comprises a PWM module (PWM controller 112, Fig 4, Odaohhara) for outputting at least one of a voltage control signal (voltage control signal CS2, Fig 4) and a current control signal (charge control signal CS1, Fig 4) (8:26-34, 9:18-26, and Fig 4, Odaohhara).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a PWM controller as taught by Odaohhara as modified by Fischer so that it can minimizing duty cycle to optimize efficiency of matching the reference voltage and boost current delivery (9:3-26, Odaohhara).

12. Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer in view of Hsin and Jeansonne, and further in view of Hsu, US 6,798,173.

Regarding claim 19, note the discussion of claim 12 above. Fischer does not teach the first portion comprises a twisted-pair cable. However, Hsu teaches the first portion comprises a twisted-pair cable (3:10-52, Hsu).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a twisted-pair cable as taught by Hsu as modified by Fischer so that it can fitting the data transfer rates of USB and maximum length limitation and further canceling out electromagnetic interference, electromagnetic radiation and crosstalk between neighboring pairs (3:10-52, Hsu).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Bar-On et al. (US 5,870,615), Pierce et al. (US 5,606,704), Dornier et al. (US 5,561,772), and Shinbori et al. (US 6,128,040).

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

    A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KW
26 September 2008

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